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EXAMINER

ALSTRUM ACEVEDO, JAMES HENRY

ART UNIT	PAPER NUMBER
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1616

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,921	Applicant(s) KOLTZENBURG ET AL.	
	Examiner JAMES H. ALSTRUM ACEVEDO	Art Unit 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-57 is/are pending in the application.
- 4a) Of the above claim(s) 42-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-41 and 49-57 is/are rejected.
- 7) ☒ Claim(s) 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/14/09; 4/24/06</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claims 24-57 are pending. Applicants cancelled claims 1-23 and added new claims 24-57 in a preliminary amendment submitted on April 24, 2006. Receipt and consideration of Applicants' reply and restriction election, submitted on June 23, 2010 are acknowledged.

Election/Restrictions

Applicant's election without traverse of Group I (claims 24-41 and 49-57) and species elections of (i) AMPS monomer as the compound of Formula I, (ii) phenoxyethyl acrylate as the compound of Formula II, and n-butyl acrylate as the compound of Formula IIb in the reply filed on June 23, 2010 is acknowledged.

Claims 42-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on June 23, 2010. **The species election of specific monomers of formulae I, II, IIb, and IIc is withdrawn**, but the restriction requirement is maintained.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. An embedded hyperlink and/or other form of browser-executable code is found on page 9, line 28 of Applicants' specification.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claim 27 is objected to because of the following informalities: R5 should be removed from the description of monomers of formula IIc, because the structure of monomer formula IIc does not contain any R5 substituent. Formula IIc is a sub-genus of formula IIb, and it appears that R5 was inadvertently included in the description of the monomer structure of formula IIc. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 52-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claims 52 and 55 include product-by-process limitations, which recite removal of the solvent in “a conventional way;” however, Applicants specification does not identify what Applicants consider “conventional solvent removal” techniques and which solvent removal techniques Applicants consider “unconventional.” Therefore, the ordinary skilled artisan would be unable to ascertain whether the recited product-by-process steps of solvent removal affect the structural characteristics of the claimed active compound formulation.

The remaining claims are rejected as depending from a rejected claim.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 24, 26, and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Huth et al. (U.S. Patent No. 5,319,093).

Applicants claim an active compound formulation comprising (a) at least one active compound chosen from the group of fungicides, (b) at least one radical copolymer formed from monomers of i) and ii) and iii) optionally additional monomers, wherein monomer i) is at least one olefinically unsaturated monomer of formula I (e.g. 2-acrylamido-2-propane sulfonic acid [AMPS]); monomer ii) is at least one olefinically unsaturated monomer of formula II (e.g. methyl methacrylate, butyl acrylate, or various alkyl- and dialkyl acrylamides); or monomer ii) is at least one olefinically unsaturated monomer of formula IIb or IIc (e.g. phenoxyethyl acrylate or n-butyl acrylate). In some embodiments the formulation is in the form of an aqueous dispersion having a particle size of less than 1 micron.

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In Example 5 (col. 12, lines 4-26), Huth exemplifies the preparation of an aqueous dispersion comprising a biocidal copolymer having fungicidal properties, due to the presence of BCM (i.e. benzimidazolylcarbamic acid methyl ester), as shown below.

EXAMPLE 5

1186.2 g of D water, 19.5 g of 50% strength by weight aqueous methacrylamidopropyltrimethylammonium chloride solution, 19.5 g of laurylpyridinium chloride and 48 g of a monomer mixture composed of 258.4 g of butyl acrylate, 229.1 g of methyl methacrylate, 9.8 g of hydroxyethyl methacrylate and 7.3 g of BCM-AMPS salt (see Example 3) are initially introduced into a stirred reactor as described in Example 1 and heated to 80° C. After adding 1.95 g of AVA and prepolymerizing for 15 minutes, the residual monomer mixture is metered in in the course of 2 hours. A further 0.48 g of AVA, which has been dissolved in 10 g of D water at pH 7 with co-use of aqueous NaOH, is then added and the reaction mixture is stirred for 30 minutes at 80° C. After cooling to RT, a finely divided cationic dispersion is obtained which is free from coagulate and has an S content of 30% by weight, a pH value of 3.5 and a MFT of <0° C. The BCM content of the copolymer is 0.65% by weight, with respect to the copolymer.

The BCM-AMPS salt reads on a monomer of formula I in the form of a salt. However, at a pH value of 3.5 it is likely that the AMPS monomer units in the copolymer are in the form of a neutral repeat unit within the polymer chain. Butyl acrylate reads on a monomer of formulae II, IIb, and IIC. Methylmethacrylate reads on a monomer of formulae II, IIb, and IIC. Huth teaches that the aqueous dispersions have a particle size ranging from 0.02 microns to 1 micron (i.e. 20 nm to 1,000 nm), preferably 0.05 microns to 0.5 microns (i.e. 50 nm to 500 nm, which is below 1 micron) (col. 5, lines 55-59). Huth does not specify the particle size of the particles in

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the dispersion exemplified in Example 5. Because Huth disclose a fungicidal composition having all the required components of Applicants' claims and Huth directs the ordinary skilled artisan to aqueous dispersions having a particle size less than 1 micron, Huth properly anticipates the rejected claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Applicant Claims
2. Determining the scope and contents of the prior art.
3. Ascertaining the differences between the prior art and the claims at issue, and resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 24, 26, 29-33 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huth et al. (U.S. Patent No. 5,319,093).

Applicant Claims

Applicants claim an active compound formulation as described above, wherein the average particle diameter is less than 300 or 100 nm and, wherein, in some embodiments the amount of sulfonic acid monomer is varied as well as the relative amount of fungicide to polymer.

Determination of the Scope and Content of the Prior Art (MPEP §2141.01)

The teachings of Huth are set forth above. Additional relevant teachings are set forth herein. The **content of monomer units of the BCM salts in the polymers or copolymers is variable over a wide range, and is preferably 0.001-5% w/w, in particular 0.02% to 1% w/w** (col. 3, lines 50-61). The copolymers may contain 80-99.9% w/w of ethylenically unsaturated hydrophobic monomers (e.g. acrylic esters, methacrylic esters, etc.), **0.001-5% w/w of BCM salts of formula I**, 0-10% w/w of ethylenically unsaturated cationic water-soluble monomers, and **0-19% w/w of hydrophilic monomers containing one or more functional groups from the series comprising, -OH, -COOH, -SO₃H (e.g. AMPS), -PO(OH), etc.** (col. 6, lines 31-68; col. 8, lines 37-61, especially, line 53; and claim 1).

Ascertainment of the Difference Between Scope the Prior Art and the Claims (MPEP §2141.012)

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Huth does not anticipate claims 40-41, because Huth does not exemplify an aqueous dispersion formulation having an average particle size of less than 300 nm or less than 100 nm. However, Huth teaches overlapping ranges of dispersion particle sizes, thus suggesting the aforementioned particle size ranges.

***Finding of Prima Facie Obviousness Rationale and Motivation
(MPEP §2142-2143)***

It would have been *prima facie* obvious to a person of ordinary skill at the time of the instant invention to follow Huth's teachings and obtain aqueous dispersions having an average particle size in the range of less than 100 nm or less than 300 nm because Huth teaches overlapping particle size ranges as being suitable. A *prima facie* case of obviousness necessarily exists when the prior art range overlaps or touches a claimed range, such as in the instant rejection. MPEP § 2144.05. An ordinary skilled artisan would have been motivated to follow Huth's teachings and would have had a reasonable expectation of successfully obtaining aqueous dispersion formulations having an average particle size of less than 300 nm or less than 100 nm, because these ranges overlap with the ranges taught by Huth as being suitable. Furthermore, the physical characteristics (e.g. size and shape) of particulate compositions are clearly result specific parameters that a person of ordinary skill in the art would routinely optimize. Optimization of parameters is a routine practice that would be obvious for a person of ordinary skill in the art to employ. It would have been customary for an artisan of ordinary skill to determine the optimal physical particle characteristics (e.g. average particle size.) of a particulate composition needed to achieve the desired results. Thus, absent some demonstration of unexpected results from the claimed parameters, the optimization of the average particle size of

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particles in an aqueous dispersion would have been obvious at the time of applicant's invention. It is also noted that Huth teaches overlapping amounts of sulfonic acid containing monomer, as either part of a BCM salt or as a hydrophilic monomer included in the prepared copolymers. Concerning claim 30, Huth teaches amounts of sulfonic acid monomer (e.g. 19% w/w) in copolymer that would be expected to exhibit similar properties as in a copolymer comprising 30% w/w sulfonic acid monomer. Regarding claim 33, the ordinary skilled artisan would be motivated to increase the amount of BCM salt to enhance the antifungal properties of any resulting aqueous dispersion (i.e. it is reasonably expected that greater antifungal activity would be observed for compositions comprising more antifungal agent). Therefore, the claimed invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, because the combined teachings of the prior art is fairly suggestive of the claimed invention.

Claims 34-37 and 49-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huth et al. (U.S. Patent No. 5,319,093) as applied to claims 24, 26, 29-33 and 38-41 above, and further in view of Suarez-Cervieri et al. (US 2005/0032903).

Applicant Claims

Applicants claim an active compound formulation as described above, wherein the active compound is a strobilurin, such as pyraclostrobin.

Determination of the Scope and Content of the Prior Art (MPEP §2141.01)

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The teachings of Huth are set forth above.

Suarez-Cervieri identifies stroliburins, such as pyraclostrobin, as being known antifungal compounds (i.e. fungicides) and indicates that aqueous compositions of these fungicides are effective in controlling rusts (i.e. a class of fungi) (title; abstract; [0004]-[0006]; and claims 1-5). The antifungal compound can be present in the composition in an amount ranging from 0.1-95% w/w [0042]. The stroliburins can be used in formulations in the form of solutions, emulsions, suspensions, powders, pastes, and granules [0045].

*Ascertainment of the Difference Between Scope the Prior Art and the Claims
(MPEP §2141.012)*

Huth lacks the teaching of formulations comprising stroliburins, such as pyraclostrobin, and compositions in the form of solutions or solids. These deficiencies are cured by the teachings of Suarez-Cervieri.

*Finding of Prima Facie Obviousness Rationale and Motivation
(MPEP §2142-2143)*

It would have been *prima facie* obvious to a person of ordinary skill at the time of the instant invention to modify the teachings of Huth and include additional known antifungal agents, such as those taught by Suarez-Cervieri, because the combination of two different known antifungal compounds would be expected to have at least an additive effect on the composition's resulting fungicidal properties. It is generally considered *prima facie* obvious to combine two compounds each of which is taught by the prior art to be useful for the same purpose, in order to form a composition which is to be used for the very same purpose. The idea for combining them

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flows logically from their having been used individually in the prior art. See *In re Kerkhoven*, 626, F.2d 848, 205 USPQ 1069 (CCPA 1980). Regarding the form of the compositions, Suarez-Cervieri's teachings demonstrate that it is conventional to formulate antifungal formulations in a variety of forms, such as solutions, dispersions, solids, etc. An ordinary skilled artisan would have had a reasonable expectation of successfully converting Huth's aqueous dispersions into solutions by the addition of an appropriate solvent or solvents and similarly would have had a reasonable expectation of successfully obtaining solid formulations of Huth's formulations by removal of all the solvent, including water. Therefore, the claimed invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, because the combined teachings of the prior art is fairly suggestive of the claimed invention.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 24-41 and 49-57 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-4, 7-11, 13, and 20-21 of copending Application No. 11/918,522 (copending '522) in view of Suarez-Cervieri et al. (US 2005/0032903). Independent claim 24 of the instant application is described above. Independent claim 1 of copending '522 claims a preparation comprising (a) at least one fungicidally active compound selected from the group of conazoles, (b) at least one further crop protection agent (active compound 2), and (c) at least one copolymer constructed from ethylenically unsaturated monomers selected from at least one monomer M1 having a sulfonic acid group and at least one neutral monomer M2. The primary differences between the rejected claims of the instant application and the cited independent claim of copending '522 are that independent claim 1 of copending '522 does not (i) depict any monomer formulae, (ii) mention that the second active agent is a strobilurin, such as pyraclostrobin, and (iii) does not specify that the formulations may be in the form of solids, dispersions, or solutions. Dependent claims 3-4 of copending '522 demonstrate that contemplated active compound 2 compounds include strobilurins, such as pyraclostrobin. Dependent claim 7 of copending '522 demonstrates that a contemplated modification of independent claim 1 of copending '522 was the inclusion of sulfonic acid containing monomers, such as AMPS, which is encompassed by formula I depicted in claim 7 of copending '522. Dependent claim 10 of copending '522 demonstrates that a contemplated modification of independent claim 1 of copending '522 was to include monomers of formula M2a, such as phenyl-C₁-C₄ alkanol esters of acrylic acid (e.g. phenoxyethyl acrylate).

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Regarding difference (iii) above, the teachings of Suarez-Cervieri establish that it was conventional to formulate antifungal compositions in the form of solutions, dispersions, solids, etc. Thus, an obvious modification of independent claim 1 of copending '522 would include obtaining said claimed composition in the form of dispersions, solutions, or solids. Therefore, a person of ordinary skill in the art at the time of the instant invention would have found claims 24-41 and 49-57 *prima facie* obvious over claims 1, 3-4, 7-11, 13, and 20-21 of copending Application No. 11/918,522 (copending '522) in view of Suarez-Cervieri et al. (US 2005/0032903).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yoneyama et al. (Japanese Patent, JP 2723971) is relevant because it discloses copolymers comprising AMPS, POA (phenoxyethyl acrylate), and additional monomers (e.g. Table 1: Examples 1-4 in the English Machine Translation) and suggests gel compositions comprising said copolymers in combination with deodorizers, insecticides, repellants, attractants, bactericides, and fumigants, but does not mention fungicides or antifungals.

Claims 24-41 and 49-57 are rejected. Claims 42-48 are withdrawn. The specification and claim 27 are objected. No claims are allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James H. Alstrum-Acevedo whose telephone number is (571) 272-5548. The examiner can normally be reached on M-F, ~10:00-6:00 and Saturdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571) 272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/James H Alstrum-Acevedo/
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